

ELEVATED GM-CSF AND IL-8 LEVELS PRESENT IN
THE ALVEOLAR LAVAGE OF SMOKERS ARE
PARTIALLY REDUCED FOLLOWING SWITCHING TO
ECLIPSE

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Pro-inflammatory cytokines are found in increased amounts in the lower respiratory tract of smokers. Eclipse is a cigarette which heats tobacco rather than burning it thus generating reduced amounts of toxic substances. The current trial evaluated cytokine levels in the lower respiratory tract of heavy cigarette smokers who switch to Eclipse. Smokers (≥ 40 cigarettes/day) who were free of significant lung disease and did not wish to quit, were evaluated with a bronchoalveolar lavage before and after switching to Eclipse for two months. Eighteen subjects enrolled and 13 completed both bronchoscopies. Eight normal non-smokers were evaluated once for comparison purposes. Bronchoalveolar lavage was performed in a middle and upper lobe using 5x20 ml aliquots of sterile saline. The final four aliquots representing predominantly alveolar material were processed separately from the initial 20 ml aliquots which represented predominantly bronchial material. Granulocyte-macrophage colony stimulating factor (GM-CSF) and interleukin-8 (IL-8) were measured by direct ELISA. There were no significant changes in self reported cigarette use, exhaled CO, carboxyhemoglobin, serum nicotine or cotinine after Eclipse. GM-CSF was elevated in the alveolar component of the lavage fluid of smokers compared to non smokers (6.9 ± 1.6 vs 1.4 ± 1.2 pg/ml, $p < 0.05$) and was partially, but significantly reduced following switching to Eclipse for 2 months (5.0 ± 1.4 $p < 0.01$). IL-8 was also elevated in the alveolar component of the lavage fluid of smokers compared to non smokers (105.8 ± 16.1 vs 34.0 ± 10.6 ng/ml, $p < 0.01$) and was also partially, but significantly reduced following switching to Eclipse for 2 months (69.5 ± 14.2 , $p < 0.01$). No changes in the cytokines were observed in the bronchial portion of the lavage fluids. In summary, elevated levels of the cytokines IL-8 and GM-CSF were present in the alveolar lavage fluid of smokers and were partially but significantly reduced following a 2 month switch to Eclipse. This reduction in cytokines may reflect a reduced pro-inflammatory stimulus due to the reduced toxin content of Eclipse smoke.

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